Swami Ramanand Teerth Marathwada University,

Nanded, Maharashtra, India

(UGC recognized, NAAC Re-accredited 'B' grade state university)

"A Geographical Model For Sustainable Agricultural Development Of Latur District"

A Final synopsis submitted in partial fulfilment of the award of Ph.D. Degree

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Submitted by

Suryawanshi Chandrakant Ashok

Under the Supervision of

Dr.Bhise Dashrath Pundalikrao

Shri Mahatma Basweshwar Mahavidyalaya,Latur

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"A Geographical Model for Sustainable Agricultural Development of Latur District"

INTRODUCTION:

Agriculture is the most important activity in India. With a population of 1.27 billion India is the world's second most populous country. It is the seventh largest country in the world with an area of 3.288 million sq. km. Agriculture, with its allied sectors, is the largest source of livelihoods in India. 70 percent of its rural households still depend primarily on agriculture for their livelihood, with 82 per cent of farmers being small and marginal.

In 2017-18 total food grain production was estimated at 275 million tons(MT). India is the largest producer (25 % of global production), consumer (27% of world consumption) and importer(14%) of pulses in the world. India's annual milk production was 165 MT (2017-18), making India the largest producer of milk, jute and pulses, and with world's second largest cattle production 190 million in 2012. It is the second largest producer of rice, wheat, sugarcane, cotton and groundnuts, as well as the second largest fruit and vegetable producer, accounting for 10.9% and 8.6% of the world fruit and vegetable production, respectively.

However, India still has many growing concerns. As the Indian economy has diversified and grown, agriculture's contribution to GDP has steadily declined from 1951 to 2011. While achieving food sufficiency in production, India still accounts for a quarter of the world's hungry people and home to over 190 million undernourished people. Incidence of poverty is now pegged at nearly 30 per cent. As per the global nutrition report(2016), India ranks 114th out of 132 of countries on under 5 stunting and 120th out of 185 countries on prevalence of anaemia.

Anaemia continues to affect 50 per cent of women including pregnant women and 60 per cent of children in the country.

Agriculture is the art and science of cultivating the soil, growing crops and raising livestock. It includes the preparation of plant and animal products for people to use and their distribution to markets.

While agriculture in India has achieved grain self-sufficiency but the production is, resource intensive, cereal centric and regionally biased. The resource intensive ways of Indian agriculture has raised serious sustainability issues too. Increasing stress on water resources of the country definitely need a realignment and rethinking of policies. Desertification and land degradation also pose major threats to agriculture in the country.

Sustainable agriculture is a type of agriculture that focuses on producing long term crops and livestock while having minimal effects on the environment. This type of agriculture tries to find a good balance between the need for food production and the preservation of the ecological system within the environment.

The present study examines sustainable agriculture and its development in the Latur district. Sustainable agriculture development is very important for the future generation, and food security. The results of the study will give a reasonable understanding of the agricultural development of the Latur district and how this development helps the Sustainability of a particular area. The study will help to address issues in the agriculture sector, factors affecting agriculture development, agriculture scenario of the Latur district.

Study Area:

Latur district has been formed by carving out Dharashiv (erstwhile Osmanabad) district of erstwhile Maharashtra state. Thus the Latur district happened to be the 16^{th} district of the Maharashtra state. The district is bounded by the North by the Parbhani district, in the North-East by the Nanded district, in the East and South-East by the Bidar district of Karnataka state, in the South and West by the Dharashiv district and the North-West by

the Beed district. The entire district of Latur is situated on the Balaghat Plateau. Latur district lies between 17° 52' and 18°.50’ N latitudes and between 76°18’ and 79°12’ E longitudes.

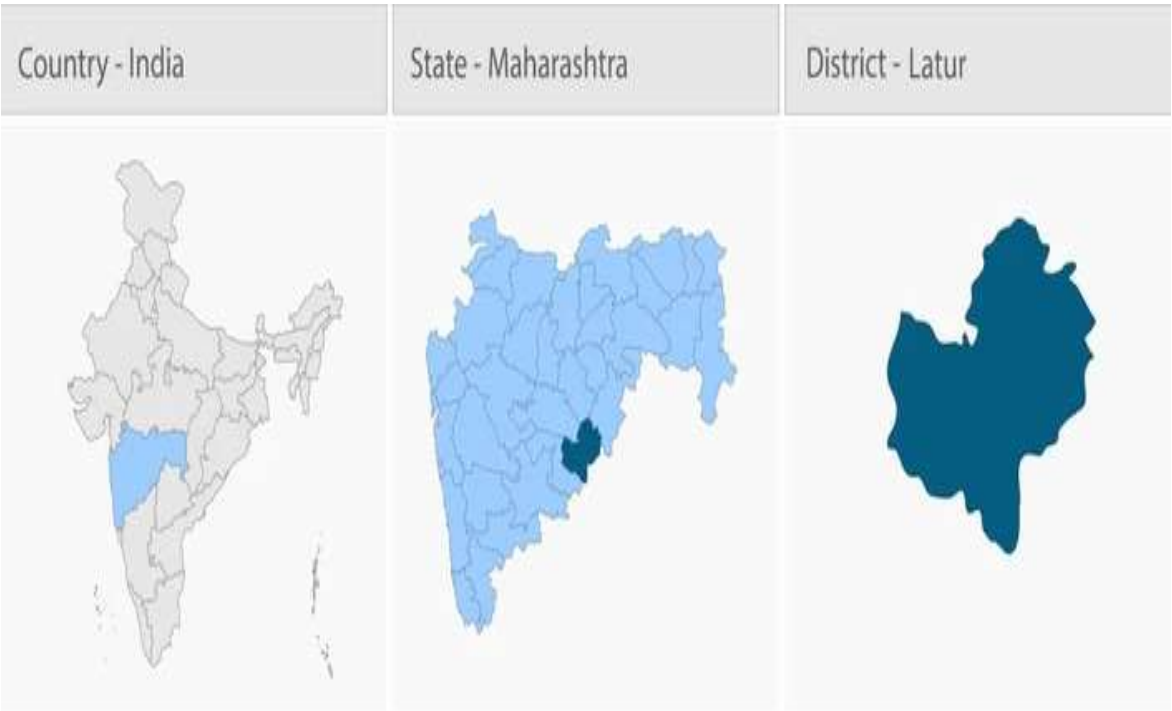

Figure No.1 Location map of the study Area

Objective of the study:

1) To analyze the geographical personality of the study area.

- To study the important physical factors influencing sustainable agriculture development in the study area.
- To discuss the influence of the non-physical factors, especially demography, literacy and transportation on agriculture development.

2) To know the spatio temporal changes Of land use and land cover in the district.

- To study the spatio temporal changes in LULC from 1991-2021
- To analyze the transformation of agricultural land to build up land in the period of 30 years.

3) To examine the agricultural scenario of the Latur district.

- To examine the crop combination of the district by the J.C Weavers and Doi's crop combination method.
- To analyze the crop concentration by using the locational co-efficient method of S.S Bhatia.
- To find the crop diversity of the study area by Harfindhal index.

4) Design a sustainable agricultural development model for Latur district.

- To discuss the cropping pattern of the Latur district by using agricultural statistics.
- To analyze the sustainability of each crop for the food security of the district and

5) To identify the major problems of the agricultural sector in Latur district and to find out the recommendations for sustainable agriculture.

Database And Methodology:

The data and the information are the most vital requirement for a research. The analysis of the entire research is to be based on the data and Information collected. Hence, the present research work is based on both primary and secondary source of data.

Primary Data:

Primary data is the raw data collected through various sources for which special questionnaires were designed and information collected from various farmers. Besides this another questionnaire is filled from concerned Talathi, Gramsewak and Sarpanch of the village to get more information of sample taluqas and villages.

Secondary data:

The secondary data has been the major source and based for present study. Secondary data collected from latur district statistical abstract, socio-economic abstract, district census handbook, department of agriculture, irrigation department, ground water survey and development agency, Taluka Land Record Office in order to obtain village wise data on agriculture land use, agriculture statistical information from agriculture department of Maharashtra, Zillaparishads, Panchayat Samitis, Talathi offices, season and crop reports, District gazetteers.

METHODOLOGY:

The data collected is analyzed by applying different suitable statistical methods and is presented through maps, table and diagrams**.**

1. To examine the crop combination of the district by the J.C Weavers and Doi's crop combination method

Steps to calculating the crop combination by J.C WEAVERS Method:

First,

arrange the actual crops areas in decrement order

Second,

Finding the deviation

ideal distribution actual distribution of cropping areas

Third,

finding the Crop combination Index for each sample, S=Ed^2/n

Fourth,

A sample of having a Minimum crop Combination Index will be the best crop combination for that region or field

2) To analyze the crop concentration by using the locational co-efficient method of S S Bhatia

Crop Concentration Index = (a/b)/(A/B)

Where,

a is the area of crop 'a' in the component areal unit

b is the area of all crops in the component areal unit,

A is the area of crop 'a' in the entire region And B is the area of all crops in the entire region

REVIEW OF LITERATURE:

1) COUNCIL ON ENERGY, ENVIRONMENT AND WATER

In Sustainable Agriculture in India 2021report, in collaboration with the Food and Land Use Coalition (FOLU). provides an overview of the current state of sustainable agriculture practices and systems (SAPSs) in India. It aims to help policymakers, administrators, philanthropists, and

[13:40, 2/14/2024] Geography Research Scholr: others contribute to an evidence-based scale up of SAPSS, which represent a vital alternative to conventional, input intensive agriculture in the context of a climate constrained future. The study identifies 16 SAPSs-including agroforestry, crop rotation, rainwater harvesting, organic farming and natural farming- using agro ecology as an investigative lens

2) National Mission For Sustainable Agriculture (NMSA):

NMSA will cater to key dimensions of 'Water use efficiency, 'Nutrient Management' and 'Livelihood diversification through adoption of sustainable development pathway by progressively shifting to environmental friendly technologies, adoption of energy efficient equipment's, conservation of natural resources, integrated farming, etc. Besides, NMSA aims at promoting location specific improved agronomic practices through soil health management, enhanced water use efficiency, judicious use of chemicals, crop diversification, progressive adoption of crop-livestock farming systems and integrated approaches like crop- sericulture, agro-forestry, fish farming, etc.

3) M Seik Mozibar Rahman (2020):

The book gives an idea about the agrarian relation of the Assam state in general and char area in particular Operational holdings, agricultural employment, and land ceiling are some focus of the book. Population dependency on agriculture for employment is very high and small size of average operational holdings are important feature of the state's economy. Besides, scope of extensive cultivation for raising total production in the state is scanty. Intensive cultivation is the only alternative left for raising total production for non-modernized agricultural technology in Assam as well as char areas. Bio-chemical technology as well as mechanical technology are two methods used for agricultural development is another dimension of the present study Flood and river erosion are the two common menaces causing frequent disastrous damages in the agriculture of Assam. Excessive dependency on agriculture and flood damages on it, use of chemical fertilizer cause to rethink about the sustainability of agriculture. The study incorporates sustainable agricultural development as an important fragment of the book.

4) Dr. Chandra Shekhar Prasad (2012):

He traces developments in Indian agriculture during the post- Independence period. It explains the key reform measures undertaken for the modernization of agriculture.

5) ENRIC SALA:

In this inspiring manifesto, an internationally renowned ecologist makes a clear case for why protecting nature is our best health insurance, and why it makes economic sense EnricSala wants to change the world-and in this compelling book, he shows us how. Once we appreciate how nature works, he asserts, we will understand why conservation is economically wise and essential to our survival

6) Current Trends in Microbial Biotechnology for Sustainable Agriculture:

This book focuses on plant microbe interactions; the biodiversity of soil and plant microbiomes, and their role in plant growth and soil health. Accordingly, it will be immensely useful to readers working in the biological sciences, especially microbiologists, biochemists and microbial biotechnologists. The environment has been sustaining the burden of mankind from time immemorial, and our indiscriminate use of its resources has led to the degradation of the climate, loss of soil fertility, and the need for sustainable strategies. The major focus in the coming decades will be on achieving a green and clean environment by utilizing soil and plant-associated beneficial microbial communities Plant-microbe interactions include the association of microbes with plant systems epiphytic, endophytic and rhizospheric.

TENTATIVE CHAPTERS SCHEME:

1) INTRODUCTION

2) SUSTAINABLE AGRICULTURE DEVELOPMENT AN OVERVIEW

3) GEOGRAPHICAL PERSONALITY OF THE STUDY AREA

4) SPATIO-TEMPORAL LAND USE AND LAND COVER CHANGE

5) CROP COMBINATION, CROP CONCENTRATION AND CROP DIVERSITY

6) AGRICULTURE DEVELOPMENT AND SUSTAINABILITY

7) SUSTAINABLE USE OF LAND RESOURCES AS A POTENTIAL FOR SUSTAINABLE AGRICULTURE DEVELOPMENT

8) SUSTAINABLE USE OF WATER RESOURCES AS A POTENTIAL FOR SUSTAINABLE AGRICULTURE DEVELOPMENT.

9) CONCLUSION

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